AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of generating a labeled image, including the steps of:

inputting a pixel block, which includes a plurality of pixels that are adjacent to one another in more than one dimension, as a single unit from data including pixels for forming an image; and

labeling, based on binarized pixels, all on-pixels or all off-pixels that are subjects for grouping and are included in the pixel block with common identification information,

wherein the method further comprises a first stage of scanning the image and labeling with provisional identification information, the first stage including the step of inputting and the step of labeling,

wherein the step of inputting of the first stage includes inputting, together with the pixel block, an adjacent pixel group including pixels that are adjacent to the pixel block and have already been labeled with the provisional identification information, and

the step of labeling of the first stage includes the steps of:

inheriting, when the adjacent pixel group includes inheritable provisional identification information, the inheritable provisional identification information as the common identification information;

recording, when the adjacent pixel group includes other inheritable provisional identification information, connecting information for the inherited provisional identification information and non-inherited provisional identification information; and

setting, when the adjacent pixel group does not include inheritable provisional identification information, new provisional identification information as the common identification information.

2. (Original) The method according to Claim 1, wherein the pixel block is composed of four pixels adjacent to one another in two dimensions or eight pixels adjacent to one another in three dimensions.

3. – 4. (Canceled)

5. (Currently Amended) The method according to Claim [4] 1, further comprising:

a second stage of labeling with real identification information showing image elements, after the first stage,

wherein the second stage includes the step of inputting and the step of labeling that are independent of the steps of inputting and labeling of the first stage respectively, and

the step of labeling of the second stage includes setting the real identification information that is common to pixel blocks in a connecting relationship by the connecting information, as the common identification information.

6. (Currently Amended) The method according to Claim [4] 1, wherein in the step of inputting of the first stage, the pixel block composed of four pixels that are adjacent to one another in two dimensions and the adjacent pixel group composed of six pixels that are adjacent to two adjacent edges of the pixel block are inputted, and

in the step of labeling of the first stage, when both the pixel block and the adjacent pixel group include pixels that constitute an image element in which pixels are consecutive, the provisional identification information included in the adjacent pixel group is inheritable.

7. (Currently Amended) The method according to Claim [4] 1, wherein in the step of inputting of the first stage, at least one pixel block and the adjacent pixel group including pixel blocks that are adjacent to the at least one pixel block are inputted, and

in the step of labeling of the first stage, when both the at least one pixel block and the adjacent pixel group include pixels that are the subjects for grouping, the provisional identification information included in the adjacent pixel group is inheritable.

8. (Currently Amended) The method according to Claim [4] 1, wherein in the step of inputting of the first stage, a large pixel block composed of four pixel blocks that are adjacent to one another in two dimensions and the adjacent pixel group composed of six pixel groups that are adjacent to two adjacent edges of the large pixel block are inputted, and

in the step of labeling of the first stage, when both the large pixel block and the adjacent pixel group include pixels that are the subjects for grouping, the provisional identification information included in the adjacent pixel group is inheritable.

9. (Original) The method according to Claim 8, further comprising a second stage for labeling image elements with real identification information, after the first stage, the second stage including the step of inputting and the step of labeling that are independent of the step of inputting and labeling of the first stage respectively, and

wherein the step of labeling of the second stage includes setting the real identification information that is common to large pixel blocks in a connecting relationship by the connecting information, as the common identification information and labeling all of the pixels that are the subjects for grouping and are included in the large pixel block.

10. (Currently Amended) The method according to Claim 1, further including the step of ~~A method of analyzing an image, including the steps of:~~

~~inputting a pixel block, which includes a limited number of pixels that are adjacent to one another in more than one dimension, as a single unit from data including a plurality of pixels for forming an image;~~

~~labeling, based on binarized pixels, all on-pixels or all off-pixels that are subject for grouping included in a pixel block with common identification information; and calculating characteristic values of respective image elements by repeatedly carrying out an operation in units that include at least one pixel block. the steps of:~~

calculating characteristic values of respective image elements having a same provisional identification by repeatedly carrying out an operation in units that include at least one pixel block.

11. – 16. (Canceled)

17. (Currently Amended) A system for generating a labeled image, the system including:

an interface configured for inputting data including a plurality of pixels, which are adjacent in more than one dimension and constitute a pixel block, in parallel from data including pixels for forming an image; and

a labeling processor configured for labeling, based on binarized pixels, all on-pixels or all off-pixels that are subject for grouping and are included in the pixel block with common identification information in parallel,

wherein the system further comprises a first processing system for scanning an image and labeling with provisional identification information,

wherein the first processing system includes the interface, the labeling processor and a memory,

the memory stores pixels that have already been labeled with the provisional identification information,

the interface of the first processing system is configured to input the pixel block and an adjacent pixel group including pixels that are adjacent to the pixel block and stored in the memory as the pixels that have already been labeled with the provisional identification information, and

the labeling processor of the first processing system is configured for performing:

inheriting, when the adjacent pixel group includes inheritable provisional identification information, the inheritable provisional identification information as the common identification information;

recording, when the adjacent pixel group includes other inheritable provisional identification information, connecting information for the inherited provisional identification information and non-inherited provisional identification information;

setting, when the adjacent pixel group does not include inheritable provisional identification information, new provisional identification information as the common identification information, and

labeling, based on binarized pixels, all on-pixels or all off-pixels that are subjects for grouping and are included in the pixel block with common identification information.

18. (Original) The system according to Claim 17, wherein the pixel block is composed of four pixels adjacent to one another in two dimensions or eight pixels adjacent to one another in three dimensions.

19. (Original) The system according to Claim 17, comprising:

a processor including a processing region that includes a plurality of processing elements, a plurality of data paths that operate in parallel being configured by the plurality of processing elements in the processing region,

wherein the interface and the labeling processor are configured in the processing region.

20. (Canceled)

21. (Currently Amended) The system according to Claim ~~20~~ 26, further comprising:

a reconfigurable processor including a processing region that includes a plurality of processing elements, a plurality of data paths that operate in parallel being configured by the plurality of the processing elements in the processing region, and a control unit for reconfiguring the processing region,

wherein the interface and the labeling processor included in the first processing system and the interface and the labeling processor included in the second processing system are configured at different timing in the processing region.

22. (Canceled)

23. (Currently Amended) The system according to Claim ~~22~~ 17,

wherein the labeling processor of the first processing system is configured for pipeline processing:

a process that decodes the pixel block and the adjacent pixel group, and

a process that labels the pixels for grouping in the pixel block with selected one of the inheritable provisional identification information and the new provisional identification information as the common identification information.

24. (Currently Amended) The system according to Claim ~~22~~ 17, further comprising

a second processing system for labeling with real identification information showing image elements, the second processing system including the interface and the labeling processor that are configured independently of the first processing system,

wherein the labeling processor of the second processing system is configured to set the real identification information that is common to the pixel blocks in a connecting relationship as the common identification information, based on the connecting information.

25. (Currently Amended) The system according to Claim ~~22~~ 17,

wherein the interface of the first processing system is configured to supply the pixel block composed of four pixels adjacent to one another in two dimensions and the adjacent

pixel group composed of six pixels that are adjacent to two adjacent edges of the pixel block to the labeling processor of the first processing system, and

the labeling processor of the first processing system is configured to inhere, when both the pixel block and the adjacent pixel group include pixels that constitute an image element in which pixels are consecutive, the provisional identification information included in the adjacent pixel group.

26. (Currently Amended) The system according to Claim ~~22~~ 17,

wherein the interface of the first processing system is configured to supply a large pixel block composed of four pixel blocks adjacent to one another in two dimensions and the adjacent pixel group composed of six pixel blocks that are adjacent to two adjacent edges of the large pixel block to the labeling processor of the first processing system, and

the labeling processor of the first processing system is configured to inhere, when both the large pixel block and the adjacent pixel group include pixels for grouping, the provisional identification information included in the adjacent pixel group.

27.(Original) The system according to Claim 26, further comprising

a second processing system for labeling with real identification information showing image elements, the second processing system including the interface and the labeling processor that are configured independently of the first processing system,

wherein the labeling processor of the second processing system is configured to set, based on the connecting information, the real identification information that is common to large pixel blocks in a connecting relationship as the common identification information and to label all of the pixels for grouping included in the large pixel block.

28. (Currently Amended) The system according to Claim 17, further comprising a processor configured to repeatedly performing an operations in units of at least one pixel block to calculate a characteristic value of each image element that has a same provisional identification.

29. – 30. (Canceled)